New Zenith
The Monthly Magazine of the Vectis Astronomical Society
Vol 22 Issue 3 — April 2014
When Printed, this Newsletter costs VAS at least £1

Society News

Postage Costs

From the end of March Royal mail is increasing the cost of postage to 62p (First class) and 53p (Second Class).

Over the years VAS postage costs have reduced as about 75% of members receive NZ by email; this helps a lot by avoiding postage and printing costs altogether.

Each physical copy of NZ cost over £1 to print and post which means that a year's worth (11 copies) absorbs about 45% of a normal adult subscription fee.

If you can, please switch to receiving NZ electronically, it's really is easy to do; just contact Norman (***members@wightastronomy.org***) and let him know your details.

Events - Help Request

I have received a couple of requests for VAS to attend quite large astronomy events to be held in 2014:

- **Corf Scout Camp, Shalfleet**
  Sat 24th May - 150 Scouts
  Start time 2100
- **National Trust Mottistone**
  Weds 27th Aug - Start time 1930
  VAS will be one of 5 activities around the garden including bats, moths, birds and hedgehogs

Both events are in dark sky areas and should be really good evenings. VAS raise considerable funds through events like these so please, if you can help at either or both events, I'd really like to hear from you. It would be good to get about 10 telescopes at each event if we can.

CPRE IW Lighting Awards 2014

John Langley (IW CPRE Chairman & VAS member) is always on the lookout for examples of good lighting on the Island and would like us to keep an eye out for Good Lighting Award candidates.

Contact John at ***cprewight@talktalk.net***

VAS Website: www.wightastronomy.org

Submissions or letters to New Zenith are always welcome and should be sent to:
The Editor New Zenith
35 Forest Road
Winford
Sandown PO36 0JY
Tel: **01983 864303** or email: **editor@wightastronomy.org**
Material for the next issue by the 6th of the month please.

VAS Registered Office

35 Forest Road, Winford, Isle of Wight, PO36 0JY

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Observatory Diary

Monday, 19.30hrs	Members Only by arrangement Telescope and night sky training. Contact Barry Bates 01983 872979
Thursday, 19.30hrs	Members and Public. Informal meeting and observing.

Contents this Month

Monthly Meeting Calendar 2014

Check the website for up to the minute information.
All details correct at time of publication.

Date	Subject	Speaker
28 Mar	Fascinating Facts About Solar Eclipses	Sheridan Williams BAA
25 April	Cosmic Rays	Prof. Alan Watson
23 May	TBA	Dr Thomas Kitching
27 June	The Radio Sky	Paul Hyde BAA
25 Jul	Exoplanets and How We Find Them	Jakub Bochinski, Chairman OU Astronomy Club
22 Aug	TBA	
26 Sep	Mysteries of the Solar System	Dr Stuart Eves Astrium
24 Oct	TBA	
28 Nov	TBA	

Telescope Training

Members wanting training on the observatory Meade LX200 should contact:

Barry Bates on 872979

Observatory Visits Booked

Wed 8th April 8pm	**Goodleaf Tree Climbing and Tourism reps**
It would be appreciated if members could avoid using the observatory at these times.	

Outreach Events

A recent outreach event at Medina Valley Centre for a group of from Bournemouth saw clear skies and good views of Jupiter.

Bert Paice and Brian took two telescopes for the group of 30 youngsters and collected a very generous donation of £70 for club funds.

VAS Contacts 2013/14	
President	Barry Bates president@wightastronomy.org
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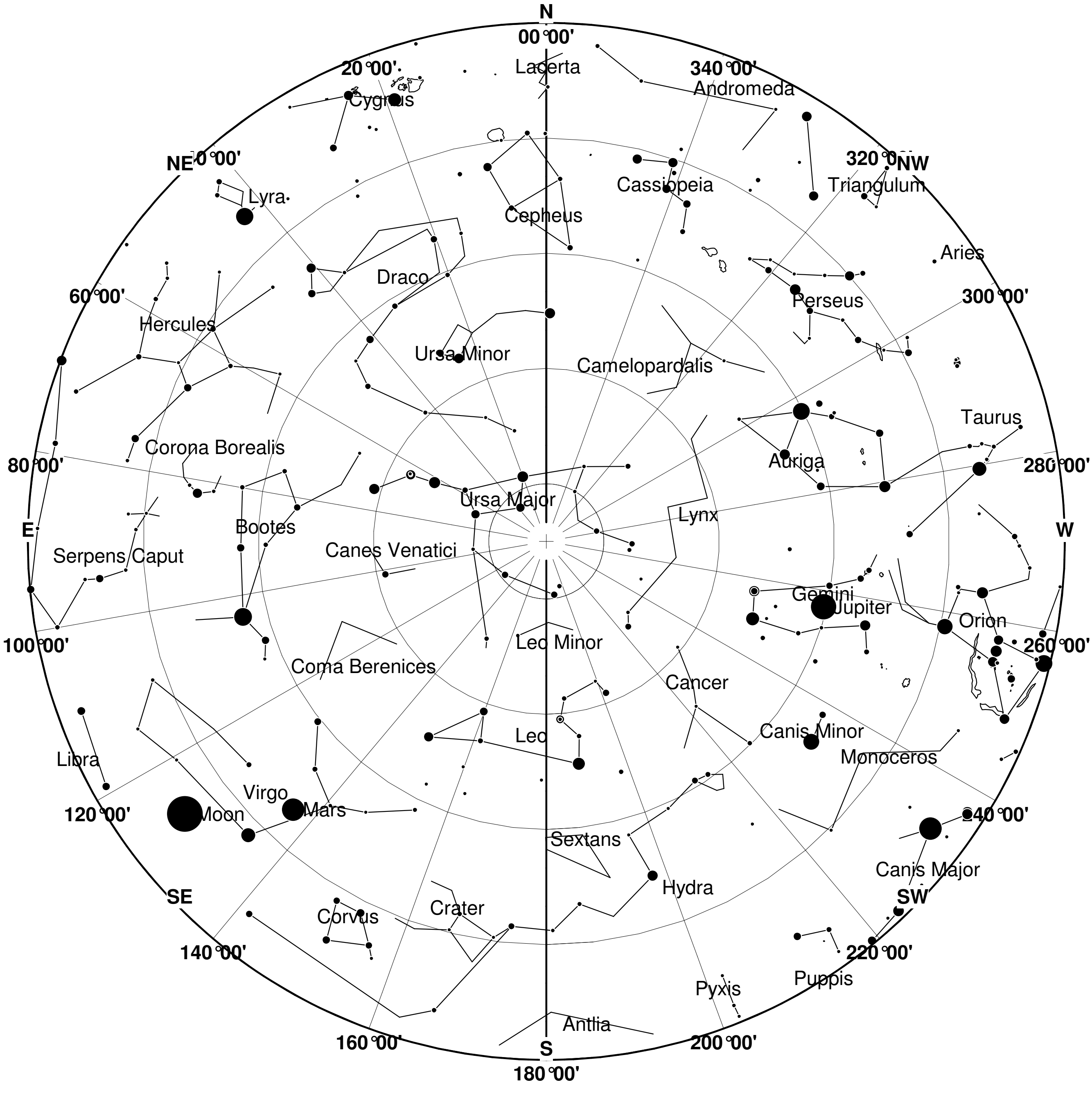
Others	Mark Williams Nigel Lee

April 2014 Sky Map



View from Newchurch Isle of Wight UK - 2200hrs - 15 April 2014

The Leo Triplet is a gathering of three magnificent galaxies in one field of view. Crowd pleasers when imaged with even modest telescopes, these galaxies can be introduced individually as NGC 3628 (left), M66 (bottom right), and M65 (top right). All three are large spiral galaxies.

They tend to look dissimilar because their galactic disks are tilted at different angles to our line of sight. NGC 3628 is seen edge-on, with obscuring dust lanes cutting across the plane of the galaxy, while the disks of M66 and M65 are both inclined enough to show off their spiral structure. Gravitational interactions between galaxies in the group have also left telltale signs, including the warped and inflated disk of NGC 3628 and the drawn out spiral arms of M66.

April 2014 Night Sky

Vernal Equinox this year occurs on March 20 at 04:55. This is the time at which the sun crosses the equator on its way north; at this time day and night are of equal length as the Sun rises over the North Pole and sets at the south.

Moon Phases

New	1st Qtr	Full	Last Qtr
10th	18th	25th	3rd

Planets

Mercury

This month sees Mercury passing behind the sun before making a re-appearance in the evening sky next month.

Venus

Spring time is not a good time to observe planets; the ecliptic the path that the planets and the sun take around the sky lies very close to the horizon at sunrise. This means that at his time of year planets rise only very shortly before the sun making them difficult to observe. Venus is so bright that it can be seen even under these difficult conditions.

Mars

Mars is at opposition this month; it rises at sunset and sets at sunrise. The Mars opposition 'season' is very short with just a few short months of good observation time every two years. By the end of next month its size will be very noticeably smaller making the surface markings much more difficult to observe.

Jupiter

From sunset until late evening when it slips into the horizon haze Jupiter is a superb object for observation. Its moons can be seen with the smallest of binoculars, but a telescope is needed to be able to see the cloud belts.

Saturn

Saturn is low down in the southern sky during the early morning hours. At mid month look for it due south at about 3am. It can be found between the much brighter Mars and the equally red but much dimmer star Antares. Even a small telescope will show the rings and brighter moons with larger optics perhaps showing the now narrow shadow of the planet on the rings. The view is spoilt somewhat by this apparition's low altitude.

Uranus & Neptune

Both of these outer planets are lost in the glare of the sun until later in the summer.

Deep Sky

Leo Triplet M65, M66, NGC3628
R.A. 11h 20m Dec 13° 14'

Just under the loins hind legs in an area not much larger than the full moon are three spiral galaxies. Using a low power all three can be seen in the same field of view. Each is about half way between edge on and face on so appear as an oval smudge with a bright core. Why NGC3628 is the largest of the three and the faintest, just (mag 9.5), why it does not have its own place in the Messier catalogue we will never know, perhaps it says something for the quality of 18th century optical equipment.

Another Leo Triplet M95, M96, M105
R.A. 10h 46m Dec 12° 8'

Continue towards the loins front legs and you will encounter another triplet of galaxies. This time spaced further apart but still visible in the same field of view, these galaxies are a little fainter and smaller and are nearer to being face on. A large telescope is needed to spot the barred spiral and ring structure of M95. While observing M105 look for NGC3384 & NGC3389 making yet another closely spaced triplet with M105.

NGC3521 Galaxy
R.A. 11h 6m Dec -0° 6' mag 10.0

Still in Leo but much further to the south, between Virgo and Sextans is to be found this compact spiral. As with most galaxies a large telescope is needed to glimpse any structure in the spiral arms and dust lanes, but even small 'scopes show it to have an oval shape with a bright core.

Peter Burgess

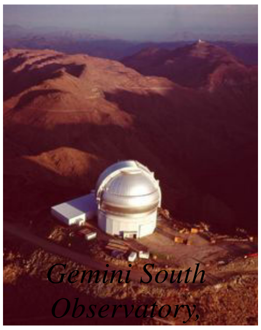
Gemini Planet Imager – a new eye to scan the sky for exoplanets

Article published 24 March 2014, 6.28am AEST THE CONVERSATION

The Gemini South telescope – pictured here – houses the latest gear to hunt down and snap photos of exoplanets. Gemini Observatory, CC BY

There is excitement in astronomy and planetary science departments worldwide as the new Gemini Planet Imager, housed in the Gemini South Telescope in the Chilean Andes, turns its razor-sharp gaze to the skies.

This device, known as GPI for short, is the first of a small handful of sophisticated instruments to attempt a task that until recently was considered all but impossible: to image the faint mote of light betraying the presence of a planet nestled against the overwhelming glare of its host star.



Gemini South Observatory, Chile. Gemini Observatory/AURA

Planets in orbit around distant stars – exoplanets – are now known to adorn more than 1,000 star systems. There is possibly five times that number under strong suspicion awaiting only final confirmatory data to join the club.

You could be forgiven for thinking this avalanche of discovery – all coming in the past 20 years – has settled most of the important questions in exoplanetary science.

The reality, though, is it hasn't.

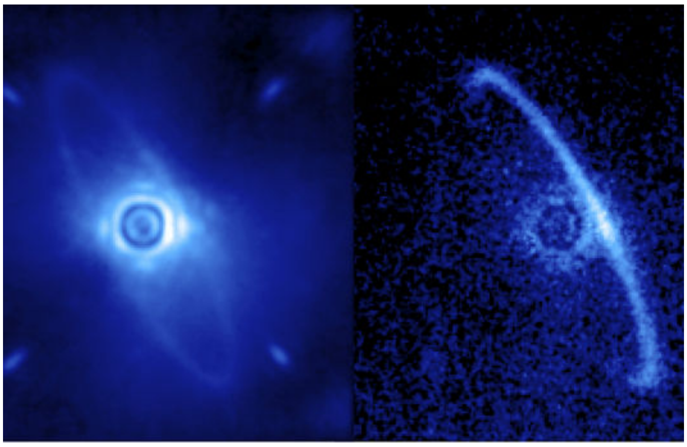
Location, location, location

The sample of exoplanets we now have tells us far more about the limitations of the techniques we use to find them than it does about the exoplanets themselves. We have only seen the tip of the iceberg.

The search can be likened to the proverbial scientist in a dark car park searching for a set of dropped car keys under the only streetlight. A passer-by asks: "Did you drop your keys there?" "No," you reply. "I dropped them somewhere over there in the dark, but I can only see here."

That patch of discovery illuminated by our present instruments particularly favours the largest planets in the closest orbits about their host stars.

The extreme examples of this (and the most celebrated exoplanet discovery – of 51 Peg – that launched the field in 1995) are known as "hot Jupiters". The name understates their inhospitable crushing gravity combined with searing radiation field from the looming host star.



Gemini Planet Imager's first images of the light scattered by a disk of dust orbiting the young star HR4796A. Processing by Marshall Perrin, Space Telescope Science Institute, CC BY

In a quest to identify planets capable of supporting life hot Jupiters score low. Astronomers are working on a valuation scheme that would identify those that lie within the so-called "habitable zone".

Recognising water in liquid form as the critical environmental ingredient for life on Earth, exoplanets are said to be in this zone if they are able to support a similarly temperate climate.

To get a more representative picture of exoplanetary populations, including those in the habitable zone, we need new techniques to illuminate the unknown areas beyond the reach of our present instruments.

Peering into the depths

The most obvious way to find an exoplanet is to look for specks of light circling a host star. This also turns out to be one of the most challenging.

To an observer looking at our solar system from a great distance, the Earth is about ten thousand million times fainter than the Sun.

This is the brightness difference between a firefly and a modern lighthouse lamp capable of sending a beam to a ship 20km out to sea.

GPI on the Gemini South Telescope as it prepares for a night of exoplanet observations.
Gemini Observatory/AURA, CC BY

Further compounding the difficulty, the exoplanet imaging problem would be equivalent to the ship's captain identifying the firefly buzzing about only 1mm from the searing glare of the central lamp.

Twinkle twinkle little exoplanet

If this does not sound difficult enough, the whole exercise must be performed while looking at the star through the Earth's turbulent atmosphere.

This causes a shimmering haze that smears the star and planetary light together into a blurred mess – a bit like sea-spray on the outer glass lighthouse window preventing any clear view within.

This limitation to the clarity of images made with telescopes, known as "seeing", has been the bane of astronomers since it was first properly identified by Sir Isaac Newton.

Seeing turned out to be all but intractable until it became a problem for then US president Ronald Reagan's Strategic Defence Initiative (also known as the Star Wars program) in the 1980s.

Tasked with disabling an incoming missile using a laser beam, military researchers realised that without correcting for the seeing, their laser would diffuse, warming a large patch rather than punching a concentrated lethal hole in the target.

Seeing better

Their solution was to develop a complex new technology known as Adaptive Optics. Since it was declassified in the 1990s it has been taken up and improved at astronomical observatories worldwide.

The key components to the system are a specialised sensor to measure the errors introduced by the atmosphere each instant. It uses a deformable mirror driven by rapid electro-mechanical actuators (or motors) which can undo most of the corrugations in the starlight wavefronts.

The new GPI instrument is the first of a revolutionary new generation given the title of Extreme Adaptive Optics systems, with an order of magnitude more actuators delivering exquisite wavefront correction.

All this will allow astronomers to turn on a new powerful floodlamp illuminating unknown sectors of the exoplanetary landscape. For stars in the local neighbourhood of our own sun, GPI will certainly probe in to regions within the habitable zone.

But like any voyage of discovery, perhaps the best part of all is that we don't really know what we will find there.

*Article Source - **theconversation.com***

Editor's Note

Sometimes I stumble on websites that deserve more attention than they seem to get - this month I thought I'd introduce you to ***The Conversation***.

Their byline is "*Academic rigour, journalistic flair*" and they pride themselves on making information freely available, for example their republishing guidelines include this:

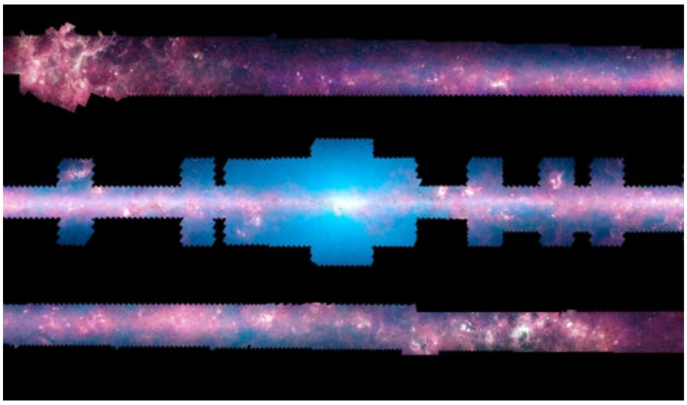
Steal our articles (no, really)

Rather than charge you for our content, we believe in a free flow of information. So unless otherwise noted, you can republish our articles online or in print for free. You just have to credit us and link to us, and you can't edit our material or sell it separately.

I hope you like it

NASA's Spitzer Telescope Brings 360-Degree View of Galaxy to Our Fingertips

March 20, 2014



A new panorama from NASA's Spitzer Space Telescope shows us our galaxy's plane all the way around us in infrared light. Image Credit: NASA/JPL-Caltech/University of Wisconsin.

Touring the Milky Way now is as easy as clicking a button with NASA's new zoomable, 360-degree mosaic presented Thursday at the TEDActive 2014 Conference in Vancouver, Canada.

The star-studded panorama of our galaxy is constructed from more than 2 million infrared snapshots taken over the past 10 years by NASA's Spitzer Space Telescope.

"If we actually printed this out, we'd need a billboard as big as the Rose Bowl Stadium to display it," said Robert Hurt, an imaging specialist at NASA's Spitzer Space Science Center in Pasadena, Calif. "Instead we've created a digital viewer that anyone, even astronomers, can use."

The 20-gigapixel mosaic uses Microsoft's WorldWide Telescope visualization platform. It captures about three percent of our sky, but because it focuses on a band around Earth where the plane of the Milky Way lies, it shows more than half of all the galaxy's stars.

The image, derived primarily from the Galactic Legacy Mid-Plane Survey Extraordinaire project, or GLIMPSE360, is online at:

http://www.spitzer.caltech.edu/glimpse360

Spitzer, launched into space in 2003, has spent more than 10 years studying everything from asteroids in our solar system to the most remote galaxies at the edge of the observable universe. In this time, it has spent a total of 4,142 hours (172 days) taking pictures of the disk, or plane, of our Milky Way galaxy in infrared light. This is the first time those images have been stitched together into a single expansive view.

Our galaxy is a flat spiral disk; our solar system sits in the outer one-third of the Milky Way, in one of its spiral arms. When we look toward the center of our galaxy, we see a crowded, dusty region jam-packed with stars. Visible-light telescopes cannot look as far into this region because the amount of dust increases with distance, blocking visible starlight. Infrared light, however, travels through the dust and allows Spitzer to view past the galaxy's center.

"Spitzer is helping us determine where the edge of the galaxy lies," said Ed Churchwell, co-leader of the GLIMPSE team at the University of Wisconsin-Madison. "We are mapping the placement of the spiral arms and tracing the shape of the galaxy."

Using GLIMPSE data, astronomers have created the most accurate map of the large central bar of stars that marks the center of the galaxy, revealing the bar to be slightly larger than previously thought. GLIMPSE images have also shown a galaxy riddled with bubbles. These bubble structures are cavities around massive stars, which blast wind and radiation into their surroundings.

All together, the data allow scientists to build a more global model of stars, and star formation in the galaxy -- what some call the "pulse" of the Milky Way. Spitzer can see faint stars in the "backcountry" of our galaxy -- the outer, darker regions that went largely unexplored before.

"There are a whole lot more lower-mass stars seen now with Spitzer on a large scale, allowing for a grand study," said Barbara Whitney of the University of Wisconsin, Madison, co-leader of the GLIMPSE team. "Spitzer is sensitive enough to pick these up and light up the entire 'countryside' with star formation."

The Spitzer team previously released an image compilation showing 130 degrees of our galaxy, focused on its hub. The new 360-degree view will guide NASA's upcoming James Webb Space Telescope to the most interesting sites of star-formation, where it will make even more detailed infrared observations.

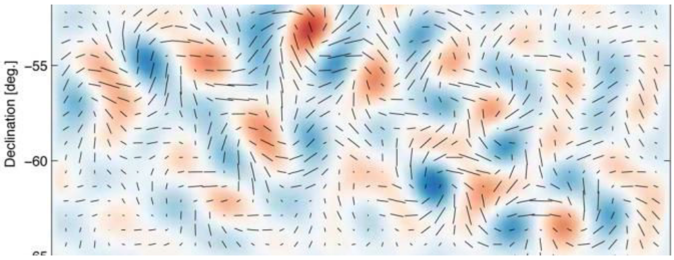
Some sections of the GLIMPSE mosaic include longer-wavelength data from NASA's Wide-field Infrared Survey Explorer, or WISE, which scanned the whole sky in infrared light.

The GLIMPSE data are also part of a citizen science project, where users can help catalog bubbles and other objects in our Milky Way galaxy. To participate, visit: ***http://www.milkywayproject.org***

More at: ***NASA***

First Direct Evidence of Cosmic Inflation

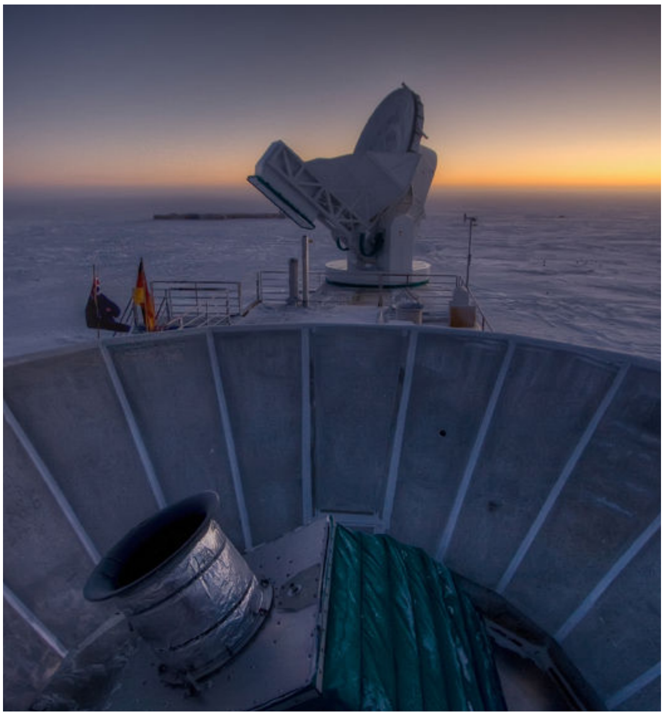
Release No.: 2014-05
For Release: Monday, March 17, 2014 - 10:45am



Cambridge, MA - Almost 14 billion years ago, the universe we inhabit burst into existence in an extraordinary event that initiated the Big Bang. In the first fleeting fraction of a second, the universe expanded exponentially, stretching far beyond the view of our best telescopes. All this, of course, was just theory.

Researchers from the BICEP2 collaboration today announced the first direct evidence for this cosmic inflation. Their data also represent the first images of gravitational waves, or ripples in space-time. These waves have been described as the "first tremors of the Big Bang." Finally, the data confirm a deep connection between quantum mechanics and general relativity.

"Detecting this signal is one of the most important goals in cosmology today. A lot of work by a lot of people has led up to this point," said John Kovac (Harvard-Smithsonian Center for Astrophysics), leader of the BICEP2 collaboration.



These groundbreaking results came from observations by the BICEP2 telescope of the cosmic microwave background -- a faint glow left over from the Big Bang. Tiny fluctuations in this afterglow provide clues to conditions in the early universe. For example, small differences in temperature across the sky show where parts of the universe were denser, eventually condensing into galaxies and galactic clusters.

Since the cosmic microwave background is a form of light, it exhibits all the properties of light, including polarization. On Earth, sunlight is scattered by the atmosphere and becomes polarized, which is why polarized sunglasses help reduce glare. In space, the cosmic microwave background was scattered by atoms and electrons and became polarized too.

"Our team hunted for a special type of polarization called 'B-modes,' which represents a twisting or 'curl' pattern in the polarized orientations of the ancient light," said co-leader Jamie Bock (Caltech/JPL).

Gravitational waves squeeze space as they travel, and this squeezing produces a distinct pattern in the cosmic microwave background. Gravitational waves have a "handedness," much like light waves, and can have left- and right-handed polarizations.

"The swirly B-mode pattern is a unique signature of gravitational waves because of their handedness. This is the first direct image of gravitational waves across the primordial sky," said co-leader Chao-Lin Kuo (Stanford/SLAC).

The team examined spatial scales on the sky spanning about one to five degrees (two to ten times the width of the full Moon). To do this, they travelled to the South Pole to take advantage of its cold, dry, stable air.

"The South Pole is the closest you can get to space and still be on the ground," said Kovac. "It's one of the driest and clearest locations on Earth, perfect for observing the faint microwaves from the Big Bang."

They were surprised to detect a B-mode polarization signal considerably stronger than many cosmologists expected. The team analyzed their data for more than three years in an effort to rule out any errors. They also considered whether dust in our galaxy could produce the observed pattern, but the data suggest this is highly unlikely.

"This has been like looking for a needle in a haystack, but instead we found a crowbar," said co-leader Clem Pryke (University of Minnesota).

When asked to comment on the implications of this discovery, Harvard theorist Avi Loeb said, "This work offers new insights into some of our most basic questions: Why do we exist? How did the universe begin? These results are not only a smoking gun for inflation, they also tell us when inflation took place and how powerful the process was."

BICEP2 is the second stage of a coordinated program, the BICEP and Keck Array experiments, which has a co-PI structure. The four PIs are John Kovac (Harvard), Clem Pryke (UMN), Jamie Bock (Caltech/JPL), and Chao-Lin Kuo (Stanford/SLAC). All have worked together on the present result, along with talented teams of students and scientists. Other major collaborating institutions for BICEP2 include the University of California at San Diego, the University of British Columbia, the National Institute of Standards and Technology, the University of Toronto, Cardiff University, Commissariat à l'Energie Atomique.

BICEP2 is funded by the National Science Foundation (NSF). NSF also runs the South Pole Station where BICEP2 and the other telescopes used in this work are located. The Keck Foundation also contributed major funding for the construction of the team's telescopes. NASA, JPL, and the Moore Foundation generously supported the development of the ultra-sensitive detector arrays that made these measurements possible.

Technical details and journal papers can be found on the BICEP2 release website:

http://bicepkeck.org

Headquartered in Cambridge, Mass., the Harvard-Smithsonian Center for Astrophysics (CfA) is a joint collaboration between the Smithsonian Astrophysical Observatory and the Harvard College Observatory. CfA scientists, organized into six research divisions, study the origin, evolution and ultimate fate of the universe.

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More at: ***Harvard-Smithsonian Center for Astrophysics***

Averted Vision

When you look directly at something, its image falls on your retina's fovea centralis. This spot is packed with bright-light-optimized **cone** cells and provides sharp resolution under strong illumination. But the fovea is fairly blind in dim light. So to see something faint, you have to look slightly away from it. Doing so moves the image of your target off the fovea and onto parts of the retina that have more **rod** cells, which see only in black and white but are more light-sensitive than the cones.

To see this effect at work, stare straight at a moderately faint star. It will disappear. Avert your gaze just a bit; there it is again.

Practice concentrating your attention on things a little off to one side of where your eye is aimed. This technique is called averted vision. You'll be using it almost all the time when deep-sky observing.

Avoid placing the object very far on the "ear side" of your center of vision; it may fall on the retina's blind spot there and vanish altogether. In practice, finding how far to avert your vision is a matter of trial and error. Not enough and you don't get the full benefit; too much and you lose the ability to resolve details.

Your peripheral vision is highly sensitive to motion. Under certain conditions, wiggling the telescope makes a big, dim ghost of a galaxy or nebula pop into view. When the wiggling stops, the object disappears again into the vague uncertainty of the sky background.

But under other conditions, just the opposite technique may work, especially with objects that are both faint and tiny. According to Colorado astronomer Roger N. Clark's 1990 book Visual Astronomy of the Deep Sky, some studies indicate that the eye can actually build up an image over time almost like photographic film - if the image is held perfectly still. In bright light the eye's integration time, or "exposure time," is only about 1/10 second. But in the dark, claims Clark, it's a different story. A faint image may build up toward visibility for as long as six seconds if you can keep it at the same spot on your retina for that long. Doing so is quite contrary to instinct, because in bright light fixating on something tends to make it less visible with time.

Long exposure times might possibly be one reason why an experienced observer sees deep-sky objects that a beginner misses. Perhaps the veteran has learned, unconsciously, when to keep the eye still. It also may help to explain why bodily comfort is so essential for seeing faint objects. Fatigue and muscle strain increase eye motion.

THE BACK PAGE

LINKS, COMMENTS AND OBSERVATIONS

Plugging the hole in Hawking's black hole theory

(Phys.org) — Recently physicists have been poking holes again in Stephen Hawking's black hole theory – including Hawking himself. For decades physicists across the globe have been trying to figure out the mysteries of black holes – those fascinating monstrous entities that have such intense gravitational pull that nothing – not even light – can escape from them. Now Professor Chris Adami, Michigan State University, has jumped into the fray.

The debate about the behaviour of black holes, which has been ongoing since 1975, was reignited when Hawking posted a blog on Jan. 22, 2014, stating that event horizons – the invisible boundaries of black holes – do not exist.

Hawking, considered to be the foremost expert on black holes, has over the years revised his theory and continues to work on understanding these cosmic puzzles.

One of the many perplexities is a decades-old debate about what happens to information – matter or energy and their characteristics at the atomic and subatomic level – in black holes.

"In 1975, Hawking discovered that black holes aren't all black. They actually radiate a featureless glow, now called Hawking radiation," Adami said. "In his original theory, Hawking stated that the radiation slowly consumes the black hole and it eventually evaporates and disappears, concluding that information and anything that enters the black hole would be irretrievably lost."

But this theory created a fundamental problem, dubbed the information paradox. Now Adami believes he's solved it.

"According to the laws of quantum physics, information can't disappear," Adami said. "A loss of information would imply that the universe itself would suddenly become unpredictable every time the black hole swallows a particle. That is just inconceivable. No law of physics that we know allows this to happen."

So if the black hole sucks in information with its intense gravitational pull, then later disappears entirely, information and all, how can the laws of quantum physics be preserved?

phys.org

Exploding stars prove Newton's gravity unchanged over cosmic time

(Phys.org) — Australian astronomers have combined all observations of supernovae ever made to determine that the strength of gravity has remained unchanged over the last nine billion years.

Newton's gravitational constant, known as G, describes the attractive force between two objects, together with the separation between them and their masses. It has been previously suggested that G could have been slowly changing over the 13.8 billion years since the Big Bang.

If G has been decreasing over time, for example, this would mean that the Earth's distance to the Sun was slightly larger in the past, meaning that we would experience longer seasons now compared to at much earlier points in the Earth.s history.

phys.org

Observatory

For your own safety, when visiting the VAS observatory, please bring a torch. Also, please make sure you close and lock the car park gate if you are the last to leave - if you need the combination to the lock, please contact a member of the committee.

Articles Needed

New Zenith needs letters, articles or pictures related to all aspects of astronomy. Contributions to the Editor please at the email or postal address on the front page.

"The opposite of a correct statement is a false statement. The opposite of a profound truth may well be another profound truth."
Niels Bohr

"There is more stupidity than hydrogen in the universe, and it has a longer shelf life."
Frank Zappa

"It is much more comfortable to be mad and know it, than to be sane and have one's doubts."
G. B. Burgin

"I am not young enough to know everything."
Oscar Wilde